Remarks/Arguments

Claims 1, 3, and 11 have been rejected as being anticipated under 35 U.S.C. § 102(b) as being anticipated by Giancaterini, U.S. Patent No. 4,590,092. The Examiner alleges that Giancaterini teaches a method of manufacturing a luminescent screen assembly for a CRT comprising the steps of: screening an inner surface of a faceplate panel thereby providing on the inner surface a screened surface having phosphor deposits and organic materials, depositing a metal layer on the organic materials, and removing the organic materials from the inner surface of the faceplate panel by volatilizing the organic materials. Applicants respectfully disagree.

First of all, the Giancaterini reference fails to disclose the actual step of removal of the organic material by volatization through heating such that volume rates of gaseous decomposition products from each of the components of the organic material is less than the diffusion rates of the respective gaseous decomposition products through metal layer. Rather, Giancaterini teaches the formation of holes in the aluminum layer due to the microcrystals formed after the application of the crystalline layer on the surface. After deposition of the aluminum layer, the tube is submitted to heat treatment so that the organic later decomposes. The gases from the decomposition escape through the holes formed by the microcrystals. Although Giancaterini decomposes the organic material, he does not do so by controlling the volume rates of the gaseous decomposition products as required by the claims. Giancaterini does not volatize "the organic material through heating such that the volume rates of gaseous decomposition products from each of the components is less than the diffusion rates of the gaseous decomposition products through the metal layer" as required by claim 1.

As stated on pages 7 and 8 of the specification, " [c]ontrolling the volume rate of gaseous organic constituents that are produced during the screen bake step, prevents

the formation of excess gaseous organic constituents that may deform the structure of the metal layer forming blisters therethrough. Understanding the thermal decomposition temperature of the major components of the materials used for the EPS process is of great importance....In particular, the thermal decomposition temperature of the OC layer, the OPC layer, the filming layer and the overspray layer determine the amount of gaseous organic constituents produced." Giancaterini fails to teach "volatizing the organic materials through heating such that the volume rates of the gaseous decomposition products from each of the components is less than the diffusion rate of the respective gaseous decomposition products through the metal layer." In addition, Giancaterini does not teach controlling the volume rate of the gaseous decomposition products produced by adjusting rates of temperature increase. Consequently, Giancaterini fails to anticipate claims 1, 3 and 11.

Claims 1, 3, and 11 have also been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini. In setting forth his reasons, the Examiner admits, as he must that Giancaterini does not explicitly state that the volume rate of decomposition products is less than the diffusion rate through metals. Nevertheless, the Examiner proceeds to reason that because the patent mentions blister formation, it would have been obvious to one of ordinary skill in the art to have optimized the rate of decomposition in order to achieve a desired blend of productivity and blister formation. Applicants disagree. The Examiner's logic is incorrect. Although Giancaterini mentions blistering, his remedy is to spray a crystal forming solution, whereby crystals cause a large number of holes in the aluminum layers, thus providing for better gas discharge. He, however, does not recognize or appreciate the importance of the constituents of the material and the particular thermal decomposition temperature of the constituents in preventing blisher formation. Nor does he control blistering by heating at various

temperatures to ensure that the volume rate of the gaseous decomposition of products from each component is less than the diffusion rate of the respective products through the metal layer. For these reasons and those set forth above, Giancaterini fails to render obvious the claimed invention.

The Examiner also incorrectly states that the Applicants' previous arguments with respect to this rejection are unconvincing because they are not commensurate with the scope of the claims. Applicants respectfully disagree. The arguments have been commensurate with the scope of the claims. However, the Examiner overlooks the limitations in the claims required by the Applicants, namely "volatizing the organic materials through heating such that the volume rates of the gaseous decomposition products from each of the components is less than the diffusion rate of the respective gaseous decomposition products through the metal layer," found in claim 1 as well as controlling the volume rate of the gaseous decomposition products by adjusting the rate of temperature found in claim 3.

Claim 2 has been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini as applied to claim 1 and further in view of Saulnier, Jr. and Harper. The Examiner admits that Giancaterini does not teach that the organic materials are present in a coating weight of at least 1.0 mg/cm^2. However, the Examiner then reasons that Saulnier, Jr. teaches a phosphor layer that contains up to 0.47 mg/ cm^2. He then reasons that Harper teaches the use of a organic precoating layer for the enhancement of the adhesion of the phosphor layer of up to 0.8 mg/ cm^2 . Under the guise of obviousness, the Examiner concludes, without any underlying motivation or reason whatsoever, one of ordinary skill would have used a precoating layer of up to 0.8 mg/ cm^2 and up to 0.47 mg/ cm^2 of organic material to impermissibly arrive at a cumulative

weight of greater than 1.0 mg/ cm^2 of organic material as required by claim 2. Applicants respectfully disagree.

First, there is absolutely no motivation in the references themselves to combine them in the additive manner suggested by the Examiner. The Examiner is simply improperly using the Applicants specification as a roadmap and lumping the teachings of two additional references onto the base reference in an additive manner to arrive at the conclusion that the prior art teaches a coating of organic materials of at least 1.0 mg/ cm^2. This is improper for numerous reasons. First, the prior art fails to suggest the desirability of the combination itself. There is no teaching, direct or indirect, in any of these patents to construe them in the way suggested by the Examiner.

Furthermore, even if combined, the secondary references do not overcome the deficiency of the primary reference. Not one of the secondary references teaches heating the organic material such that the volume rates of the gaseous decomposition products from each of the components is less than the diffusion rates of the respective gaseous decomposition products through the metal layer. Once again, the Examiner's conclusion is improper. Therefore, the applicants request that the rejection be withdrawn.

Claims 3-6 and 11 have been rejected under 35 U.S.C. §103 as being unpatentable over Giancaterini as applied to claims 1 and 11 and further in view of Patel. The Examiner in this rejection also admits the Giancaterini fails to teach the use of more than one temperature rate or screen bake and frit curing steps. However, he attempts to remedy the deficiency with the addition of Patel. According to the Examiner, Patel teaches that different heating rates may be used during the screen bake and frit sealing cycles. Applicants disagree.

First, there is no reason to combine the two references, nor is there any motivation in the references themselves to do so. Second, neither the combination of references nor the individual references teach volatizing the organic materials through heat such that the volume rates of the gaseous decomposition products is less than the diffusion rate of the respective decomposition products through the metal layer. Third, the two references combined fail to teach the explicit steps set forth in claim 11, wherein the luminescent screen is exposed to a first, second and third temperature, whereby the first component is volatized during the second temperature and the second component volatizes during the third temperature. The Examiner incorrectly asserts that heating to any temperature necessarily involves heating to two intermediate temperatures. That is incorrect. Even assuming for the sake of argument that the Examiner's premise is correct, the reference fails to teach volatizing the first component during the second temperature and the second component during the third temperature. Consequently, the express limitations of the claims are not met by the Examiner's rejection and the Applicants request the withdrawal of the rejection.

Claims 6-10 have been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini in view of Patel and in further view of Skinner. The Examiner once again admits as he must that the combination of Giancaterini in view of Patel fails to teach an oxidizer on the screen. Rather he reasons that Skinner teaches the use of an oxidizing agent can be included on the inside of the funnel. Based upon this, he reasons that it would have been obvious to one of ordinary skill in the art to include the oxidizing agent in the method of Giancaterini and Patel in order to minimize reduction during frit curing.

The Examiner is wrong. First, there is no motivation to combine the teachings as suggested. Skinner clearly teaches the addition of the oxidizing agent only to the

funnel coating and not anywhere else in the CRT or during the method of forming the CRT. Contrary to the Examiner's assertion, the citation to column 2, lines 41-48 supports the Applicants position that Skinner only discloses the use of the oxidizing agent in the funnel coating. Therfore, the Examiner is distorting the teaching of Skinner with his suggestion. The Examiner is using improper hindsight to arrive at his incorrect conclusion. Furthermore, even the teaching of Skinner added to Giancaterini in view of Patel, the combination itself fails to render obvious applicant's invention. The combination of references fail to teach heating to a temperature to diffuse a portion of the organic materials through the metal layer during the screenbake step and subsequently heating the assembly to a temperature to diffuse the remaining organic materials through the metal layer during the frit curing step, wherein the diffusion rate of the organic materials through the metal layer is greater than the volume rate of the gaseous decomposition products formed during the heating step. Finally, these references fail to teach the rates of volatization during various screenbake and frit curing steps as explicitly set forth in claims 9 and 10. In addition, the references fail to teach a provision of an oxygen source during the frit cure step as required by claim 6. Most importantly, the combination of references also fail to teach heating the assembly to diffuse a portion of the organic materials through the metal layer during a screenbake step, subsequently heating the assembly to a temperature to diffuse remaining organic materials during the frit curing step wherein the diffusion rates for the organic materials through the metal layer is greater than the volume rate of gaseous decomposition products of the organic materials formed during heating steps. In view of all deficiencies resulting from the alleged combination of the references, in addition to the impropriety of the combination itself, Applicants respectfully request withdrawal of the rejection.

Claims 12-16 have been rejected under 35 U.S.C. § 103 as being unpatentable over Giancaterini in view of Patel and further in view of Harper and Wagland. Once again the Examiner pieces together myriad of references to arrive at a rejection using hindsight and improper reasoning. Here the Examiner admits that neither Patel nor Giancaterini teach the 2nd through 5th temperature ranges of applicants claim 12. However, he reasons that because Wagland teaches that PMMA and PHEM are operative decomposable materials for smoothing a phosphor layer prior to aluminizing, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate PMMA and PHEM into the coating of Giancaterini and Patel with a reasonable expectation of success. Once again, this is improper hindsight.

Furthermore, because Wagland fails to disclose all materials in applicants' claims, the Examiner then turns to Harper. The Examiner alleges that it would have been obvious to one of ordinary skill in the art to include polystyrene as Harper teaches that an organic precoating may be used to enhance the adherence of subsequently deposited phosphors as set forth in col. 2, lines 48-68.

There is absolutely no motivation to combine the references as suggested by the Examiner other than pure hindsight. Moreover, there is no teaching in any of these references, or any combination of the references of using various temperatures to decompose sequentially various components of the organic material as required by the express limitations in the Applicants' claims. As the Examiner fails to meet the limitations set forth in the claims, the rejection is improper and must be withdrawn.

For all the reasons set forth above, Applicants submit not one reference anticipates the invention as claimed or renders obvious the claimed invention. Therefore, applicants respectfully request a withdrawal of the pending rejection and an indication of the allowability of the claims. If the Examiner has any question that would

facilitate the resolution of the issues, he is respectfully requested to contact the undersigned at 717-295-6207.

Please charge any additional fees associated with this application to Deposit Order Account No. 07-0832.

Respectfully submitted,

LaPeruta, Jr. et al., Applicants

Richard LaPeruta, Jr.
Registration No. 51,252
Agent for Applicants
Phone: 717-295-6207
Facsimile: 717-295-6084

Patent Operation
Thomson Licensing Inc.
P.O. Box 5312
Princeton, NJ 08543-5312

November 4, 2004